LISTING OF THE CLAIMS

This listing of claims, amended as indicated below, replaces all prior versions, and listings, of claims in the application

1-9. (Canceled)

10. (previously presented) A power delivery system comprising:

an input power conditioning circuit for switching input power to obtain a desired power condition;

a DC bus coupled to the power conditioning circuit for transferring DC power supplied by the power conditioning circuit;

a power control circuit coupled to the power conditioning circuit for controlling input power drawn by the power conditioning circuit;

a first circuit for delivering an input signal indicative of input power to the power control circuit;

a second circuit coupled to the DC bus for delivering an output signal indicative of output power to the power control circuit; and

a power inverter coupled to the DC bus for providing a switched power output, wherein: the power control circuit operable to control the power conditioning circuit such that input power tracks with output power, and the power output signal indicative of output power is obtained based on direct measurements of speed and torque of a motor coupled to the power inverter.

11-19. (Canceled)

20. (currently amended) A controller for an electrical power delivery system which provides controlled power to a load, the power delivery system including a DC link having a rectification circuit for converting incoming AC power to DC power, a switched inverter for generating controlled AC power from the DC power, and an energy storage unit in the DC link coupling the rectification circuit and the inverter, the controller comprising:

an input power conditioning unit adapted for connection to an output of the rectification circuit;

a power control unit coupled to the power conditioning unit for controlling the power drawn by the power conditioning unit;

a first sensor unit operative to provide a signal indicative of the DC power drawn by the power conditioning unit by sensing a voltage and current at the output of the rectification circuit; and.

a second sensor unit operative to provide a signal indicative of output AC power delivered to the load by sensing the DC link voltage and current;

wherein the power control unit is operable in response to the signals from the first and second sensor units to control the power conditioning unit to minimize the difference between the DC power drawn by the input power conditioning unit and the AC power delivered to the load,

whereby the capacity of the energy storage unit is minimized.

21. (previously presented) A power delivery system including the controller according to claim 20, further comprising:

a power output unit which is adapted to provide power to the load; and

a DC bus coupled to the power conditioning unit for transferring DC power supplied by the power conditioning unit to the power output unit.

22. (previously presented) The power delivery system according to claim 21, wherein the controller comprises an integrated circuit.

23. (previously presented) The power delivery system according to claim 21, wherein the second sensor unit comprises an estimator circuit coupled to the DC bus and operable to provide the signal indicative of output power based on measurements obtained from the DC bus.

24. (previously presented) A power delivery system according to claim 21, wherein the power output unit comprises a power inverter coupled to the DC bus for providing a switched power output to the load.

25. (previously presented) The power delivery system according to claim 24; wherein:

the energy storage unit comprises a bus capacitor coupled to an input of the power inverter; and

the power rating of the bus capacitor is minimized relative to the power capacity of the system.

26. (previously presented) The power delivery system according to claim 24; wherein:

the energy storage unit comprises an inductor which couples the DC bus to an input of the power inverter, wherein the power rating of the inductor is minimized relative to the power capacity of the system.

27. (previously presented) The power delivery system according to claim 24, wherein the signal provided by the second sensor unit is obtained based on direct measurements of speed and torque of a motor coupled to the power inverter.

28. (previously presented) The controller according to claim 20, wherein the power conditioning unit comprises a power factor correction circuit.

29. (previously presented) The controller according to claim 20, wherein the first sensor receives an input current signal indicative of input current provided to the power conditioning unit, and an input voltage signal indicative of voltage supplied to the power conditioning unit.

30. (canceled)

31. (previously presented) The controller according to claim 29, wherein the DC power signal provided by the first sensor is obtained through multiplication of signals representing the input current and the input voltage.

32. (previously presented) The controller according to claim 20, wherein the load to be driven is a motor, and the signal provided by the second sensor unit is obtained based on direct measurements of speed and torque of the motor.

33. (canceled)

34. (previously presented) The controller according to claim 21, wherein the power conditioning unit includes a power factor correction unit.

35. (previously presented) An integrated circuit comprising the controller according to claim 20.

36. (currently amended) A method for controlling power delivered to a load by a power delivery system including a DC link having a rectification circuit for converting incoming AC

power to DC power, a switched inverter for generating controlled AC power from the DC power, and an energy storage unit in the DC link coupling the rectification circuit and the inverter, the method comprising the steps of:

obtaining an indication of input power drawn by the power delivery system from a power source from measurement of the current and voltage at the rectification circuit by sensing a voltage and current at the output of the rectification circuit;

obtaining an indication of output power delivered to the load by sensing the DC link voltage and current;

controlling a power conversion unit coupled to the input power source to minimize the difference between the input power drawn from the source and the output power delivered to the load, based on the indications of the input and output power.

37. (previously presented) The method according to claim 36, wherein the output power indication is derived from measurements of at least one of a torque and velocity of a motor load.

38. (currently amended) A method for minimizing power rating for a passive component in a power delivery system[[,]] comprising a rectification circuit coupled to an alternating current power source, a power conversion unit coupled to an output of the rectification circuit, an output of the power conversion unit coupled to a DC link to which the passive component is connected, further comprising a DC-AC inverter having an input connected to the DC link and an output providing output power, the method comprising:

obtaining an indication of input power drawn by the power delivery system from ~~a~~ the alternating current power source by sensing a voltage and current at an output of the rectification circuit;

obtaining an indication of the output power supplied by the power delivery system by sensing the DC link voltage and current; and

controlling ~~a~~ the power conversion unit ~~coupled to the input power source~~ to minimize the difference between the input power drawn from the power source and the output power based on the indications of the input and output power.

39. (previously presented) The method according to claim 38, wherein the output power indication is derived from measurements of at least one of a torque and velocity of a motor load.